Introduction to the Standard Model
William and Mary PHYS 771 Spring 2014

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Class information, including syllabus and homework assignments can be found at
`http://ntc0.lbl.gov/~walkloud/wm/courses/PHYS_771/`

Class Outline

- ∼50% Motivation for QCD
- ∼30% Weak interactions
- ∼20% Electroweak Standard Model

Grading

- The class grade based upon homework.
- There will NOT be an in class final. There might be a longer homework style take home final.
- You are encouraged to work together. This means first try on your own and then discuss to overcome difficulties or compare notes.
- You must submit your own homework.
- If you draw heavily from a book or the internet to solve a problem, cite your sources.
- Homework:
  - Homework accepted up to 1 week late at 2/3 credit
  - Homework accepted up to 2 weeks late at 1/3 credit
  - Homework shall be submitted on single sided paper, legibly written
  - with longer homework sets, I may randomly select certain problems to grade

Reading Material

- Required text book: *The Standard Model and Beyond* by Paul Langacker, CRC Press
- Recommended reading
  - Standard Model books: *Quarks and Leptons* by Halzen and Martin, *Weak Interactions* by Howard Georgi (either $12 from Dover or free online), *Gauge theory of elementary particle physics* by Cheng and Li
  - Group Theory: *Lie Algebras in Particle Physics* by Howard Georgi

– fun books: *Not Even Wrong: The Failure of String Theory and the Search for Unity in Physical Law* by Peter Woit,
The God Particle: If the Universe is the Answer, What is the Question? by Leon Lederman,
Nobel Dreams by Gary Taubes